

IN THE CLAIMS:

Please replace the present claims with the following amended set of claims.

Listing of Claims:

1. (Currently Amended) A microfluidic device for assaying a liquid biological sample of 10 μ L or less, said device including at least one well in which a reagent or conditioning agent is immobilized on a substrate placed in said well, said well having an entry for said sample at a side thereof from a capillary passageway, the improvement comprising a ~~microstructure~~ uniform array of posts having more than one column of posts disposed in said well at a right angle to the flow of said sample for directing said sample from the entry of said well over said substrate containing said reagent or conditioning agent in a predetermined uniform manner and purging air from said well through a vent positioned opposite said sample entry.

Claim 2 (Canceled)

3. (Currently Amended) A microfluidic device of Claim ~~2-1~~ wherein said ~~microstructure~~ uniform array of posts has a second column of posts adjacent to a first column of posts, said posts of said second column positioned between the posts of said first column, thereby preventing said sample liquid from flowing in a straight line through said space.

4. (Currently Amended) A microfluidic device of Claim ~~2-1~~ wherein said posts have at least one wedge-shaped cutout aligned vertically to said substrate for facilitating movement of the sample liquid onto said substrate.

5. (Currently Amended) A microfluidic device of Claim 1 wherein said ~~microstructure~~ uniform array of posts is positioned above said substrate.

6. (Currently Amended) A microfluidic device of Claim 1 wherein said uniform array of posts ~~microstructure~~ contacts said substrate.

7. (Currently Amended) A microfluidic device of Claim 1 ~~wherein said microstructure~~ is further comprising a ramp for directing flow upward or downward to a substrate disposed on a plateau.

8. (Currently Amended) A microfluidic device of Claim 1 ~~wherein said microstructure~~ is further comprising a groove or weir disposed perpendicularly to the direction of sample flow.

9. (Currently Amended) A method of distributing a liquid sample of 10 μ L or less uniformly over a reagent or conditioning agent immobilized on a substrate placed in a well of a microfluidic device, said well having an entry for said sample of a side thereof from a capillary passageway, comprising passing said sample through ~~a microstructure~~ a uniform array of posts having more than one column of posts in said well, said ~~microstructure~~ uniform array of posts directing movement of said sample in a predetermined uniform manner from said entry over said substrate and purging air from said well through a vent positioned opposite said sample entry.

Claim 10 (Canceled)

11. (Currently Amended) A method of Claim ~~10~~ 9 wherein said ~~microstructure~~ uniform array of posts has a second column of posts adjacent to a first column of posts, said posts of said second column positioned between the posts of said first column, thereby preventing said liquid sample from flowing in a straight line over said substrate.

12. (Currently Amended) A method of Claim ~~10~~ 9 wherein said posts have at least one wedge-shaped cutout aligned vertically to said substrate for facilitating movement of said liquid onto said substrate.

13. (Currently Amended) A method of Claim 9 wherein said ~~microstructure~~ posts are positioned above said substrate.

14. (Currently Amended) A method of Claim 9 wherein said ~~microstructure contacts~~posts
contact said substrate.

15. (Currently Amended) A method of Claim 9 wherein said ~~microstructure is~~well further
comprises a ramp for directing flow upward to a substrate disposed on a plateau.

16. (Currently Amended) A method of Claim 9 wherein said ~~microstructure is~~well further
comprises a groove or weir disposed perpendicularly to the direction of sample flow.

Claims 17-26 (Canceled)

27. (Previously Presented) A method of distributing a liquid sample of 10 μ L or less uniformly over a reagent or conditioning agent immobilized on a substrate placed in the well of a microfluidic device, said well having an entry for said sample at a side thereof from a capillary passageway comprising:

- (a) passing said liquid over an inlet passageway containing grooves or weirs disposed perpendicularly to the flow of the sample liquid, and thereafter;
- (b) passing said sample liquid through a uniform array of microposts disposed in said well to distribute said liquid sample uniformly over said reagent or conditioning agent and purging from said well from a vent positioned opposite said entry for said sample.

28. (Previously Presented) A method of Claim 27, wherein said uniform array of microposts has at least two columns of said microposts disposed at a right angle to the flow of said sample, the second of said two columns of microposts positioned between the posts of said first column, thereby preventing said sample liquid from flowing in a straight line through said well.

29. (Previously Presented) A method of Claim 27, wherein said posts have at least one wedge-shaped cutout aligned vertically to said substrate for facilitating movement of said liquid

Serial No. 10/608,400

into said substrate.

30. (Previously Presented) A method of Claim 27 wherein said microposts are positioned above said substrate.

31. (Previously Presented) A method of Claim 27 wherein said microposts contact said substrate.

32. (Previously Presented) A method of Claim 27, wherein said inlet passageway comprises a ramp for directing flow upward or downward to said substrate disposed on a plateau.